25 Effect of chronic nicotine consumption on the morphology of the rat parotid gland.

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The effect of chronic nicotine consumption on the morphology of the parotid gland was studied in male Wistar rats. Nicotine was administered orally via the drinking water (100mg /l).

Within an exposition period of 90 days nicotine caused distinct morphological alterations in comparison to pair-fed control rats. Light microscopic and electron microscopic investigations as well as a morphometrical analysis showed

- a swelling of the acinar cells
- an increased number of enlarged, light, immature secretory granules within the acinar cells.
- an increase of the granular endoplasmatic reticulum
- an enlargement of the Golgi complexes

and an edematous swelling of autonomous intraglandular nerves.

These morphological findings especially the increase of the granular endoplasmatic reticulum, the enlarged Golgi complexes and the large secretory granules reflect a chronic stimulation of protein synthesis and protein secretion . Similar morphological alterations have been observed in the acinar cells of parotid glands of rats being chronically treated with the ß-adrenergic drug isoproterenol and been paraphrased by the medical term sialoadenosis.

It seems to be likely that the observed morphological alterations of the rat parotid gland after nicotine loading are due to a chronic stimulation of glandular ß-adrenoceptors via a nicotine induced release of catecholamines from the adrenals.